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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,339	09/19/2003	Leonid B. Glebov	UCF-397CIP	7045
23717 7590 05/03/2007 LAW OFFICES OF BRIAN S STEINBERGER 101 BREVARD AVENUE COCOA, FL 32922			EXAMINER ANGEBRANNDT, MARTIN J	
			ART UNIT 1756	PAPER NUMBER
			MAIL DATE 05/03/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/665,339

Applicant(s)

GLEBOV ET AL.

Examiner

Martin J. Angebrannt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 1/29/07 & 2/6/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

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1. The response of the applicant has been read and given careful consideration. Responses to the arguments are presented after the first rejection to which they are directed. Rejections of the previous office action not repeated below are withdrawn based upon the arguments and amendments of the claims.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The applicant does not have a basis for limiting contaminants, such as iron or heavy metals for all composition, only the specific composition described on page 12 of the specification. (claims 1, 13, 15, 23)

Any subject matter not found to be supported by the specification must be removed in the next response.

The applicant's representative fails to appreciate the context of the examiner's description of the loss of continuity for the claim. As discussed previously, the first filed application (09/648293) included the language "having a total contamination with iron and heavy elements below 5 parts per million" on page 7 of that specification. The subsequently filed continuation in part application 09/750708, did not contain that language and the instant

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continuation in part application 10/665339 did not include that language. The applicant seeks to reach back into the grandparent application as a basis for adding his language into the instant application. This is improper, in deleting that language, for what ever reason the applicant(s) and/or their representative had, they willfully gave up continuity of the language through the applications and any claim of benefit of the claim containing this language back to the grandparent application. See *In re Van Langenhoven*, 458 F.2d 132,137,173 USPQ 426, 429 (CCPA 1972), specifically “[ 1 ] To be entitled to the filing date of a previously filed application, appellant's application on appeal would have to satisfy the requirements of 35 U.S.C. 120, among which is the requirement that the subject matter now claimed be disclosed in the manner prescribed by the first paragraph of section 112 in the prior application. Since, to conform to section 112, claimed subject matter must be described in the specification relied upon, subject matter which is first disclosed in a continuation-in-part application is not entitled to the filing date of the parent application. *Martin v. Johnson*, 59 CCPA —, 454 F.2d 746, 172 USPQ 391 (1972); *In re Lukach*, 58 CCPA 1233, 442 F.2d 967, 169 USPQ 795 (1971).”. As the subject matter added by the applicant was not present in the instant and parent applications, the applicant has lost the ability to assert that the claims including this language are not new matter and that they are entitled to a priority date of the filing of the grandparent. This position is also congruent with the fact that the parent application 09/750708 refers to glass compositions of application 09/648293 and incorporates them by reference on page 19 of that specification.

**The applicant does have a basis for the language “impurities of iron or heavy metals above a [sic] few parts per million” on page 10 of the instant application. The examiner strongly suggests the applicant adopting this language. The following fact situation exists, in**

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the instant application (10/665339), the applicant has a specific basis for iron and heavy metals being below a "few parts per million" (page 10), the parent application (09/750708) incorporates by reference the PTR glass ..described in .. application 09/648,293" (page 19), the grandparent application (09/648293) has a basis for iron and heavy metals being present "below 5 parts per million" (page 7) and a "few parts per million" on page 5. Were the applicant to add use this language, the 112 rejection would be withdrawn. The claims would be accorded the filing date of the instant application (09/19/2003) as it is not clear on the record what the scope of few is and if this is reasonably interpreted be 5 and limited to this. The provisional application does not include any statements regarding impurity levels and so fails the written requirement limitation and the specification so the applicant can at best hope to be accorded the priority date of the filing date of 09/648293 (08/24/2000) for the claims under prosecution.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 13 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araujo et al. '404, in view of Bukharev et al., "Recording of holograms on radiation color centers in glass", Pis'ma v Zhurnal Tekhnicheskoi Fiziki Vol. 1(21) pp. 975-7 (1975), Efimov et al., 'High-efficiency Bragg gratings in photothermographic glass", Appl. Phys., Vol. 38(4) pp. 619-627 (02/1999), Blackwell et al. '010 and Borelli et al. '975.

Araujo et al. '404 teaches the heating of the glasses to 450-650 degrees C is disclosed in table I and the use of mercury arc lamps as the light darkening source and various lasers including

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krypton ion lasers operating at 480, 531 and 570 nm as the bleaching light source is taught in table II. The darkening of the glass is disclosed as causing color center formation (9/56-10/16). The treatment of the bistable photochromic glass to make the images stable is disclosed. (16/61-17/11). The glass compositions are silver halide glasses  $\text{Na}_2\text{O}-\text{B}_2\text{O}_3-\text{ZnO}-\text{Al}_2\text{O}_3-\text{SiO}_2-\text{F}-\text{Br}-\text{Ag}-\text{CeO}_2$ . See Tables.

Bukharev et al., "Recording of holograms on radiation color centers in glass", *Pis'ma v Zhurnal Tekhnicheskoi Fiziki* Vol. 1(21) pp. 975-7 (1975) in the abstract describes the exposure of a color center forming glass to gamma or UV radiation to form color centers, followed by the decolorization using 632.8 nm (HeNe) interferometric exposure to form a hologram followed by heating.

Efimov et al., 'High-efficiency Bragg gratings in photothermographic glass', *Appl. Phys.*, Vol. 38(4) pp. 619-627 (02/1999) teaches a glass sample having the Composition 15%  $\text{Na}_2\text{O}$ -5%  $\text{ZnO}$ -4%  $\text{Al}_2\text{O}_3$ -70% $\text{SiO}_2$ - 5% $\text{NaF}$ -1%  $\text{KBr}$ - 0.01%  $\text{Ag}_2\text{O}$ - 0.01% $\text{CeO}_2$  which is melted at 1460 in a DelTech Furnace, annealed at 520 degrees, polished (page 620). The gratings are formed using a interference exposure at 325 nm followed by a thermal development at 520 degrees C (page 621, left column, figure 1 and figure 4). The absorption properties in the UV and IR are shown in figure 1a-b and figure 1c shows the induced absorption by exposure at 325 nm for 400  $\text{mJ}/\text{cm}^2$ . (page 662). The achievement of a diffraction efficiency of more than 90 % is disclosed. (page 622, right column)

Blackwell et al. '010 teaches optical glasses used in waveguides and the metal impurities are preferably in the ppb range to prevent absorption of the light being guided (9/3-29)



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Borelli et al. '975 teach that additives which absorb UV should be absent, at least below 25 ppm (3/22-33). The presence of these is illustrated as having a deleterious effect on the photospeed of the compositions (5/58-20 and table 1) and composition where they are below 15 ppm the exposure times are measures less than 1 minute. The compositions are  $\text{Na}_2\text{O}$ -  $\text{ZnO}$ -  $\text{Al}_2\text{O}_3$ - $\text{SiO}_2$ - F-Br- Ag-  $\text{Sb}_2\text{O}_3$ - $\text{CeO}_2$ . see Tables.

It would have been obvious to one skilled in the art to modify the process of Araujo et al. '404 by using two overlapping beams from the disclosed Krypton ion lasers to form a bleached holographic pattern in the color centers based upon the teachings of of Bukharev et al., "Recording of holograms on radiation color centers in glass", *Pis'ma v Zhurnal Tekhnicheskoi Fiziki* Vol. 1(21) pp. 975-7 (1975)(Abstract only), to use highly purified materials similar to those developed by Efimov et al., 'High-efficiency Bragg gratings in photothermographic glass", *Appl. Phys.*, Vol. 38(4) pp. 619-627 (02/1999) based upon their evidenced high diffraction efficiency and the teachings of Blackwell et al. '010 and Borelli et al. '975 specifically describing transition metal impurities as undesirable in glasses due to their absorption in the UV and their effect in the photosensitivity and further to stabilize the resulting holographic images through the thermal treatment as taught by Efimov et al., 'High-efficiency Bragg gratings in photothermographic glass", *Appl. Phys.*, Vol. 38(4) pp. 619-627 (02/1999), who also teaches that holograms in PTR materials such as those of Araujo et al. '404 are desirable.

The motivation to use compositions at least similar to those of Efimov et al., 'High-efficiency Bragg gratings in photothermographic glass", *Appl. Phys.*, Vol. 38(4) pp. 619-627 (02/1999) arises from the high diffraction efficiencies realized in that reference, the fact that they are silver halide glasses similar to those of Araujo et al. '404 and Borelli et al. '975. The

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motivation to reduce the impurities to ppm levels comes from Blackwell et al. '010 and Borelli et al. '975 with Blackwell et al. '010 supporting the position that these purity levels can be achieved and the similarity between the processing of Araujo et al. '404 and Bukharev et al., "Recording of holograms on radiation color centers in glass", *Pis'ma v Zhurnal Tekhnicheskoi Fiziki* Vol. 1(21) pp. 975-7 (1975), where the latter uses it for forming holograms establishes both motivation and a reasonable expectation of success in using a two step exposure process to form the gratings.

With respect to the declaration, filed 2/6/07, the majority of this declaration has been dealt with previously as the declaration of 11/29/06. The only new text is the first paragraph on page 3 of the declaration which asserts that a previous declaration was sufficient in a parent application and that at the time of the Glebov et al. "Photoinduced processes in photothermorefractive glasses", *Proc. 18<sup>th</sup> Int. Congr. Glass* pp. 1151-1156 (1998), the level of impurities was not known and the effect was not appreciated. Further, the applicant does not mention the impurity levels in other, later publications (see Cited Glebov articles) so this does not reasonably seem to be a factor.

6. Claims 1,3-13 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araujo et al. '404, in view of Bukharev et al., "Recording of holograms on radiation color centers in glass", *Pis'ma v Zhurnal Tekhnicheskoi Fiziki* Vol. 1(21) pp. 975-7 (1975), Efimov et al., "High-efficiency Bragg gratings in photothermographic glass", *Appl. Phys.*, Vol. 38(4) pp. 619-627 (02/1999), Blackwell et al. '010 and Borelli et al. '975, further in view of Gaissinsky et al. '509.



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Gaissinsky et al. '509 in example 4, which makes a trademark by exposing a photochromic silver halide glass blank to 530 nm NdYAG followed by heating, followed by simultaneously 532 and 351 nm exposure, heating and cooling. [0114-0115]. The power is 10 mJ with a pulsewidth of  $5 \times 10^{-12}$  sec, which is in excess of 100MW [0113], which with minimal focusing this would exceed 10 GW/cm<sup>2</sup>.

It would have been obvious to modify the process of Araujo et al. '404 combined with Bukharev et al., "Recording of holograms on radiation color centers in glass", *Pis'ma v Zhurnal Tekhnicheskoi Fiziki* Vol. 1(21) pp. 975-7 (1975), Efimov et al., "High-efficiency Bragg gratings in photothermographic glass", *Appl. Phys.*, Vol. 38(4) pp. 619-627 (02/1999), Blackwell et al. '010 and Borelli et al. '975 by using a more powerful laser, such as the pulsed YAG taught by Gaissinsky et al. '509 for use in writing data into silver halide glasses, in place of the Krypton ion lasers, to shorten the exposure time.

In addition to the response above, the examiner notes that the material used in all the references is a silver halide glass and that the Gaissinsky et al. reference does use this with both a visible and UV exposure, therefore while the result may be different from that achieved by Araujo et al. '404, Bukharev et al., "Recording of holograms on radiation color centers in glass", *Pis'ma v Zhurnal Tekhnicheskoi Fiziki* Vol. 1(21) pp. 975-7 (1975), Efimov et al., "High-efficiency Bragg gratings in photothermographic glass", *Appl. Phys.*, Vol. 38(4) pp. 619-627 (02/1999) or Borelli et al. '975 may be different in terms of the microstructure, these are all imaging processes, which use the silver halide glasses and are therefore analogous.

7. Claims 1 and 3-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araujo et al. '404, in view of Bukharev et al., "Recording of holograms on radiation color centers in

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glass", Pis'ma v Zhurnal Tekhnicheskoi Fiziki Vol. 1(21) pp. 975-7 (1975)(Abstract only) and Efimov et al., 'High-efficiency Bragg gratings in photothermographic glass", Appl. Phys., Vol. 38(4) pp. 619-627 (02/1999), Blackwell et al. '010, Borelli et al. '975 and Gaissinsky et al. '509, further in view of IBM Tech. Discl. Bull., Vol 31(3) pp. 18-21 (08/1988).

IBM Tech. Discl. Bull., Vol 31(3) pp. 18-21 (08/1988) teaches the use of angularly multiplexed holograms (those with two or more holograms stored therein at different angles), where the angular selectivity is such that tilting the hologram result in the light being diffracted in a different direction (see figures 2a and 2b)

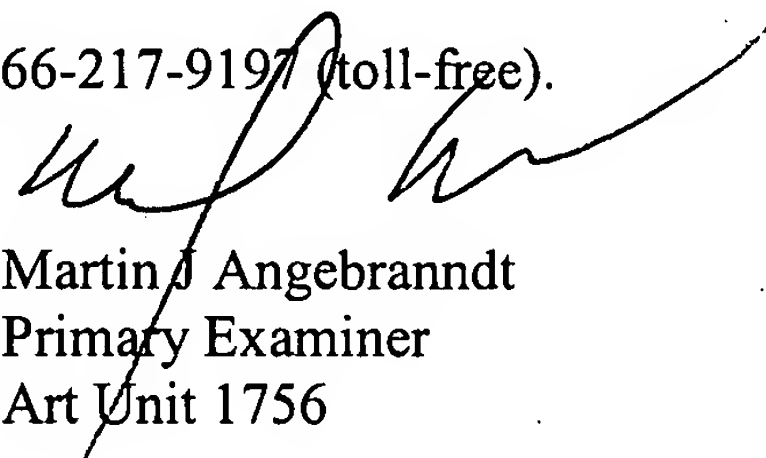
In addition to the basis provided above, the examiner holds that it would have been obvious to one skilled in the art to modify the teachings of Araujo et al. '404 combined with Bukharev et al., "Recording of holograms on radiation color centers in glass", Pis'ma v Zhurnal Tekhnicheskoi Fiziki Vol. 1(21) pp. 975-7 (1975), Efimov et al., 'High-efficiency Bragg gratings in photothermographic glass", Appl. Phys., Vol. 38(4) pp. 619-627 (02/1999), Blackwell et al. '010, Borelli et al. '975 and Gaissinsky et al. '509 to form any holograms known to be useful, including those disclosed by IBM Tech. Discl. Bull., Vol 31(3) pp. 18-21 (08/1988) with a reasonable expectation of success.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranntdt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J. Angebranndt  
Primary Examiner  
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04/26/2007